



DO Summary - Week of 2002 October 7-13

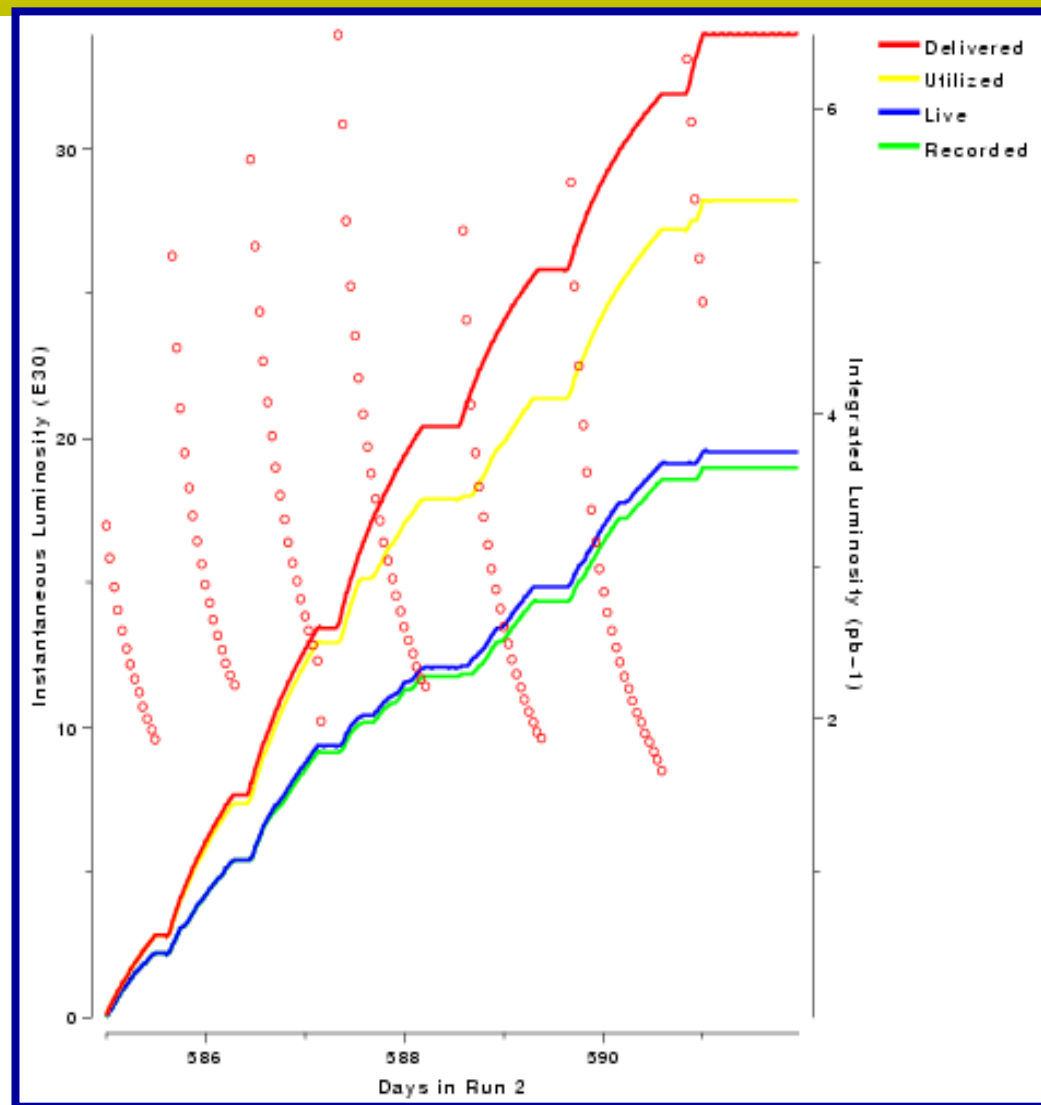
- **Luminosity & operating efficiency***

- **Delivered:** 6.5 pb^{-1}
- **Recorded:** 3.6 pb^{-1}
(~56% data taking eff.)
- **9.3 million physics events**
- **15.2 hours of downtime**
(see next slide)

- **Accelerator halo**

- **No problems aside from Store 1839**

**Numbers for Oct 9th are incorrect & will be revised, but it affects weekly report*





Data Taking Statistics

*****Preliminary*****

Date	Del Lumi (nb ⁻¹)	Util Lumi (nb ⁻¹)	L2/L3 Lost (nb ⁻¹)	Rec Lumi (nb ⁻¹)	Store (hrs)	Downtime (hrs)	Events (k)
7-Oct-02	1143.5	1100.6	2.9	808.3	20.8	0.7	1913
8-Oct-02	1264.8	1216.6	37	828.1	20.3	0.6	2074
9-Oct-02	1273.3	922.4	11.4	515.3	19	4.8	1223
10-Oct-02	887.4	551.9	39.5	355.5	15	4.7	879
11-Oct-02	929.1	824.2	13.1	618.2	16.8	2.2	1567
12-Oct-02	921.1	710	4.5	479.4	18.1	2.2	1547
13-Oct-02	72	72	0.1	42.8	0.8	0	89
	6491.2	5397.7	108.5	3647.6	110.8	15.2	9292

- Significant sources of data taking downtime
 - 2.7 hrs: Beginning of Store 1839 (miscogging of pbars)
 - 2.3 hrs: L2 Alpha Crashes
 - Six times Wed-Fri, always during beam!
 - 2 hrs: Beginning of Store 1843 (L3/DAQ, TFW, L2 Global?)
 - After 2 hrs w/several experts, the problem mysteriously disappeared
 - 1 hr: End of Store 1839 (see slides #4,5)
 - 0.8 hrs: SMT HV trips
 - Ramping at the beginning of ~50% of stores



Best Days by Recorded Luminosity

17 days
with Rec.
Lumi > 0.5
pb⁻¹

Best Day

Sorted by Recorded Luminosity.

- Recorded luminosity greater than 500 nb⁻¹
- Recorded events greater than 1000k

Stores	Date	Delivered Lumi (nb-1)	Recorded Lumi (nb-1)	In Store (hrs)	Events (in k)	Rate to Tape (Hz)
1832, 1834	2002 Oct 08	1264.8	828.1	20.3	2074	29.3
1830, 1832	2002 Oct 07	1143.5	808.3	20.8	1913	26.5
1754, 1756	2002 Sep 15	823.9	717.3	21.2	2076	27.8
1826, 1828	2002 Oct 05	1000.5	705.6	19.8	1983	28.3
1824, 1826	2002 Oct 04	1106.6	671.4	18.9	1599	26.6
1839, 1841	2002 Oct 11	929.1	618.2	16.8	1567	30.0
1787	2002 Sep 24	1036.9	581.0	17.8	1251	22.3
1770	2002 Sep 20	856.0	575.5	21.8	1800	23.7
1750, 1752	2002 Sep 13	1068.2	560.8	19.8	1443	23.8
1687, 1689	2002 Aug 25	884.4	539.6	21.1	1848	26.3
1828, 1830	2002 Oct 06	862.4	536.7	14.3	1170	27.4
1834, 1836	2002 Oct 09	1273.3	515.3	19.0	1223	24.3
1752, 1754	2002 Sep 14	786.4	508.3	18.4	1480	23.1
1711, 1713	2002 Aug 31	943.9	505.6	20.4	1774	27.2
1507	2002 Jul 8	674.9	505.1	19.9	1947	27.6
1737	2002 Sep 8	694.4	504.4	15.5	1410	26.0
1748	2002 Sep 12	727.4	500.2	15.7	1377	26.3



Results of DAQ Rate Test

- Requested End of Store studies be delayed from 08:00 to 09:00 on Friday Oct 11th
 - Store 1839, Lumi~9E30
- Called in experts for all systems for one hour
 - Required full detector readout, with all HV on to simulate real data taking
 - Used a real set of triggers which utilized L2 & L3 tools for rejection
- Reached L1 ~ 1450 Hz
 - System was stable but the global FEB was >10%
 - Too high of a 'prescale'
- Reached L2 ~ 660 Hz
 - Muon & L2 crates oscillated in FEB
 - SMT L1 queues were full
 - Waiting for L2 accepts
- Bottom Line
 - Stable data taking with L1/L2 ~ 1250/350 Hz
- Still restricted to L3<60 Hz



Progression of Rate

- 1st week of July: L1/L2/L3 ~ 200/70/30 Hz
 - Created DAQ Task Force
- Solved stability problems in Aug/Sept 2002
 - Muon Readout Errors - firmware upgrade
 - L2 Muon out-of-synch - bug fixes, new tables
 - L3 back pressure - added 31 new farm nodes
 - Trigger tables - reallocated bandwidth to priority physics, tuned prescales to maximize L1/L2
- Friday Oct 11th - Store 1841
 - First Run - Begin Lumi = 29.53E30.
 - Initial peak L1/L2/L3 rates ~ 900/260/52 Hz.
 - Second Run - Begin Lumi = 25.81E30
 - Initial peak L1/L2/L3 rates ~ 1000/285/55 Hz.
- First Run Ila global physics run with L1 > 1 kHz!

Tweaked
Prescales



Muon MDT HV Problem

Requires Access

- Affects entire octant of our North B-layer
 - ~150 MDT tubes
- Requested 1 hour access between store termination & beam studies today to locate the source of problem
 - Check many HV cable connections in detector
 - Requires ~1 hour to fully investigate
 - More details after CA
- Need 8-12 hour Access
 - Move North B-layer pixel plane to access B-layer MDTs
 - >1 yr since our crew last did this kind of job
 - review diagrams & procedures
 - Scaffolding
 - Octant 1 - upper half
 - Postpone until scheduled access



Plans for Upcoming Week

- Software & Network upgrades to online system during beam studies
- Focus on data taking stability
 - More experts at the beginning of each store
 - Minimize changes to detector systems
 - Work restricted to repairs & maintenance
- No major problems (*except for MDT HV*)
 - Will disable channels & continue to run until a Scheduled Access opportunity arises